NHS
Business Services Authority

Clinical review
Procedure underpads

NHS Clinical Evaluation Team
by the NHS, for the NHS

Contents

Guidance for use

This clinical evaluation report is aimed primarily at the NHS and all those working to support patient care. If you would like to talk through how this report can be used in your setting, please contact the team by emailing: Clinical.Evaluationteam@nhs.net

Please note that the product assessment results should only be read and used in conjunction with the full text of this clinical review.

1. Introduction

The NHS Clinical Evaluation Team was established in April 2016. The team's remit is to add independent clinical review to 'everyday healthcare consumables' used by the NHS.

Everyday healthcare consumables are products that are found in the majority of wards, clinics, health centres, treatment rooms and district nurses' bags across the NHS.

Procedure underpads were considered to have an impact on patients as they are routinely placed in contact with the patient's skin and affect the patient's dignity with concerns around respect, compassion and sensitivity.

Procedure underpads were considered to have a clinical impact as they are routinely required to protect laundry, patient clothing, furniture and equipment and to assist in preventing cross-contamination, reducing the bio-burden in the environment.

Procedure underpads are used a high volumes based on 2016 /2017 data, supplied by the national procurement provider, the NHS purchased over 53 million procedure underpads annually at a cost of £7 million, with orders been placed for procedure underpads from the majority of acute hospitals and community settings.

On the above information, the project was approved as an everyday healthcare consumable by the Clinical Reference Board in December 2016, resulting in the production of this report for their approval in July 2017.

There are 71 product codes in the category 'Disposable underpads' supplied via 9 different suppliers available to the NHS from the national procurement provider. The intention of this report is to identify the desired functions and properties for safe and effective use of a procedure underpad in delivering patient care. National and local conversations were facilitated to capture this information from frontline NHS clinicians, who use these products in high volume in everyday practice to develop the clinical criteria for a procedure underpad.

Reviews were collated into the procedure underpad product assessment report to allow users to identify products and see how they performed against the agreed clinical criteria.

As the project completed, it was realised that other underpads which are breathable are produced by a variety of suppliers and a selection are available across a different category in the catalogue provided by the national procurement provider for this reason they have not been reviewed by CET.

A more detailed description of the team and our pathway approach can be found in the NHS Clinical Evaluation Team's Operating Manual which is available on our website at: www.nhsbsa.nhs.uk/CET.

2. Clinical review

2.1. Clinical definition and scope

This report is concerned with procedure underpads. It captures products also referred to by such terms as ‘underpads, procedure / procedural pads, inco pads, bed sheets / pads, mattress sheets / pads and chair pads.’ It was felt that the comprehensive term ‘procedure underpad’ goes some way to describing the now adopted, intended use, of the products in the clinical world.

The meaning of the term ‘procedure underpad’ is that each pad is generally considered, by clinicians who we spoke to, as only suitable as a temporary absorbable and disposable containment pad for the protection of furniture, laundry and equipment and the wider surroundings during clinical procedures. The procedure underpads covered by the framework agreement for the supply of disposable continence care products with impermeable, polyethylene waterproof backing also have a partial patient protection benefit to minimise the skin‘s exposure to moisture.

Procedure underpads are split into 2 category areas (lots) within the continence framework by the national contracted provider:

- Lot 6 – Disposable Underpads – Recycled Cellulose
- Lot 7 – Disposable Underpads – Virgin Fluff

(Lot 3 – Disposable Bed/Chair Protection sheets are out of scope of this review, their product type is a paper sheet, hygiene product and not used in high volume in the NHS.)

2.1.1. Historical background

History shows us why this has developed in such a way.

During the 1950s, women's volunteer groups acquired newspaper and sewed them together for use by local nursing homes for urine incontinence. This developed further with an outer fabric to prevent newsprint on the patient’s skin. This was followed by washing and reusing the whole pad with scrap pieces of fabric inside.

In the 1970s, medical supply manufacturers saw a need for a disposable underpad that would not leak. The industry came up with the idea to take a layer of blue plastic with multiple layers of white tissue paper on top to protect the bedding and furniture. This developed into tissue-based blue pads. Commercially, paper mills used scrap recycled paper (Lot 6 – Disposable Underpads – Recycled Cellulose). As the need for pads was so large, the industry started to use virgin wood pulp. Issues arose with an increase in pressure ulcers and they went back to producing reusable washable underpads for cost effectiveness. In the 1980s, this changed again with the creation of poly spun plastic top sheets which allowed fluids to pass through easily into the virgin wood pulp. It soon became widely accepted that disposable was a better option from infection control and clinical convenience perspectives.

In the late 1980s, super absorbent polymers (Lot 7 – Disposable Underpads – Virgin Fluff) were introduced into disposable pads which encapsulated the fluid and reduced the pH of urine to 7, which inhibited the growth of bacteria, reduced skin breakdown and went someway to eliminating the smell of urine captured.

In the 1990s, adult briefs with pads were introduced and underpad usage for incontinence began to decrease in popularity. Abrams et al (2017) state the most recent publications on the use of 'bed pads' was done by Browns, DS. (1994), probably reflecting their limited role in long-term management of incontinence.

In more recent history, to help reduce moisture lesions and the rate of hospital acquired pressure ulcers innovation ensued with breathable backing to a range of underpads which allows air to flow freely through the pad. Meshino and Trefz (2013) suggest breathable underpads hold less moisture and heat on the skin's surface.

2.2. Intended clinical use

Clinical consultation during the process has shown it is widely accepted that the clinical use of a procedure underpad is:

- for use as a protective layer during a procedure being carried out and is a temporary requirement
- no longer for managing incontinence, however, it is recognised that there is a limited use for temporary continence management in a small number of clinical settings. This is in line with literature research 'disposable underpads should not be used for long-term management of urinary and/or faecal incontinence, but have a useful role as a temporary protection for chairs and beds during clinical procedures' (Abrams et al, 2017).

2.3. Clinical impact in clinical use

Clinical consultation during the process has shown procedure underpads are:

- required routinely to protect laundry, furniture and equipment in in the majority of clinical settings across acute hospitals and in the community, combined with the protection of patient's own clothes in emergency care
- to assist in preventing cross-contamination, reducing the bio-burden in the environment by using Standard Infection Control Precautions (SICP) designed to prevent cross-transmission from recognised and unrecognised sources of infection. SICP should be applied at all times and must underpin all healthcare activities (RCN Essential practice for infection prevention and control, 2012)
- more efficient to change than laundry (two plus members of staff often will be required to change the laundry)
- used on floors to soak up fluid spills in order to prevent slips and trips which are the most common cause of injury at work (Health and Safety Executive). The waterproof backing on the underpad could cause a slip hazard. For clinical

settings such as operating theatres and obstetrics absorbent, disposable, anti-slip floor pads / mats maybe a preferred option. Education is fundamental on appropriate product use for fluid spills to improve safety and prevent wastage and unnecessary cost.

- often used as a:
  - first line absorption product in:
    - Obstetrics, Pre-surgery , Recovery, Critical Care, Emergency Care, Endoscopy, Wards and clinical settings, Community, Ambulances and Outpatient Departments
  - second line absorption product in:
    - operating theatres in all clinical specialities, used under the sterile drapes to absorb fluid which is not absorbed by the drapes, during suctioning or soaked up via the sterile swabs
    - clinical settings whilst carrying out sterile procedures such as catheter related and dressing procedures.

2.4. Patient impact in clinical use

Clinical consultation during the process has shown positive aspects to the use of procedure underpads, for example they:

- soak up excess fluid to help diminish body heat loss by reducing surface fluid on the skin, however, procedure underpads may stay cold against the skin
- assist in maintaining dignity by avoiding embarrassment as a procedure underpad is easily changed and disposed of once soiled
- keep the patient drier and more comfortable as they help to lock away fluid in comparison to wet laundry. However procedure underpads have a limited ability to protect the skin as they may not remain dry to the touch. Please see product assessment results matrix at the end of this report
- avoid increased disruption of the patient and help to minimise discomfort/pain by reducing movement to change soiled laundry
- help maintain safety by preventing pooling of fluid in operating theatres which in turn decreases the risk of a diathermy burn.

Clinical consultation during the process has shown potential concerns in the use of procedure underpads, for example they may:

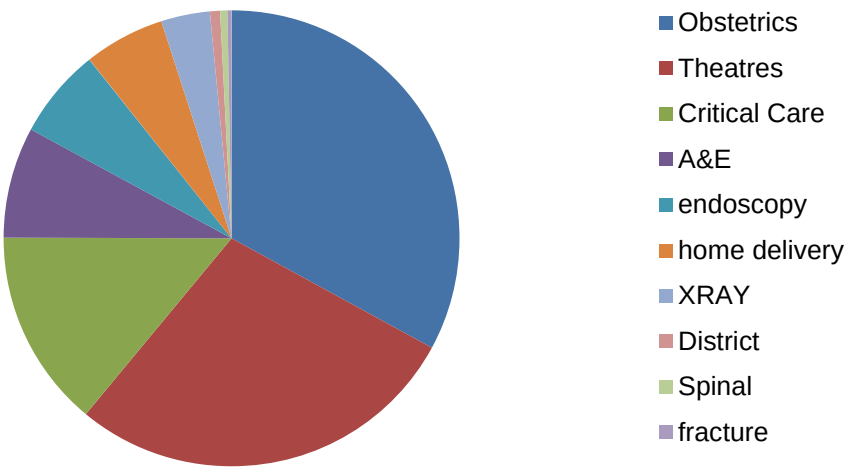
- become displaced, folded and creased which inhibits both the performance and comfort and increasing the risk of tissue damage and pressure ulceration
- become displaced and dislodged from the furniture or equipment providing a potential risk of a slip or trip
- increase the risk of pressure ulceration due to reduced integrity (NHS Stop the Pressure campaign) as when the skin comes into contact with fluid for any sustained length of time, the skin becomes soft and wrinkled (macerated), and

eventually saturated, which makes it more susceptible to additional damage from effects such as shear, friction and radiation (please see product assessment results matrix)

- increase perspiration due to the procedure underpad's waterproof backing which may not allow air or water vapour to pass through it, which in turn may increase the prevalence of moisture lesions
- escalate the risk of a fungal infection of the skin if an area on the body which is naturally warm and moist, is not cleaned and the moisture is not managed well
- disclose the fact that the user is incontinent with clothes pulled up (or absent) when present as a continence aid on a chair. This may have a psychological impact affecting body image.
- not have the absorbent capacity required in high volume leakage bursts, for instance intrapartum rupture of membrane
- not have the absorbent capacity required alongside breathability, for instance for loose faecal incontinence. For this requirement, high absorbent, breathable waterproof backing, large dry pads are available to help with the clinical impact and possible reduction of moisture lesions.
- create a potential source of infection through recycled cellulose, however there are no recent studies and risk appears to be minimal when products are used as directed (Abrams et al, 2017), users may still wish to take this possible risk into consideration for immunocompromised users.

2.5. High volume of use

- Every year 53 million procedure underpads are used in clinical departments across the majority of acute hospitals and, less so, in the community in health centres and even patients' own homes, meaning that a large number of clinical staff use procedure underpads for a huge variety of differing reasons and uses.
- The clinical settings are various and numerous, the below pie chart shows the 5 principal users out of the top 10 clinical settings in 2016/17 as Obstetrics, Operating Theatres, Critical Care, Emergency care and Endoscopy.



2.6. Product technical design

There are still two main types of disposable procedure underpad available to the NHS today and classed from their absorbent filling material both are made of wood pulp from mainly sustainable sources, which are diluted and bleached (elemental chlorine-free - ECF) to remove the Lignin (plant support tissue) as a by-product to leave no persistent, toxic or bio-accumulative compounds.

2.6.1. Recycled cellulose

Cellulose is composed of a high percentage of recycled paper fibre, usually post-consumer waste newsprint, which increases sustainability as it is recycled.

2.6.2. Virgin fluff with super absorbent polymer

Virgin fluff pulp is the cellulosic part of the absorbent core of softwoods which contains coarse, bulky, long fibres which provide increased fluid retention and liquid distribution. This range of underpads contain superabsorbent polymers (SAPs) to absorb and retain extremely large amounts of a liquid relative to their own mass, allowing the pad to be thinner, yet absorbent.

Each pad is comprised of impermeable latex free, polyethylene waterproof backing which is sealed on 4 sides to help prevent leakage. For patient comfort it has a non-woven material on the surface which should be kind to the skin.

Procedure underpads are available in a variety of sizes from 40cm x 60cm for use in clinical settings like endoscopy up to 170cm x 90cm for larger clinical requirement.

Procedure underpads are also available in a variety of absorbencies which are displayed in varying descriptions, although there is no industry standard. Suppliers use such terms as ‘standard, basic, normal, eco, premium, plus and super’ to represent differing absorbency levels.

Procedure underpads are a Class 1 device within the Medical Device Directive and must be CE marked - Directive 93/42/EEC (update expected 2017).

As a minimum they must be compliant with ISO 9001:2015 quality management systems – this is related to consistency of production, not product quality.

There is no recognised ISO quality test for procedure underpads, but due to the history, categorisation within the continence framework and the national contracting provider requesting absorption, measurement are provided via the below ISO for categorisation which all suppliers test in line with:

- BS ISO 11948-1:1996 Absorbency Banding – including Rothwell Banding ISO(g) Banding, although this is not compulsory and consequently the majority of suppliers do not verify from an independent laboratory, as it is related to disposable body-worn continence products and not procedure underpads.

The Rothwell banding laboratory test consists of the product been submerged for 30 min (5 mins if product doesn’t include SAP) into a synthetic urine solution and then

drained for 5 minutes, then weighed. The amount of liquid that was absorbed by the product is determined by differential weighing.

- Rothwell Definition of ISO Incontinence

Absorption [g] = Weight of product after submersion - Weight of dry product

This test, although useful, has its limitations as it does not show how procedure underpads are used in clinical practice and academia has only a few studies to show Rothwell banding relevance. For instance Rothwell values have been shown to correlate well with real world pad leakage performance for disposable body-worn products for heavy incontinence worn by frail elderly people in institutions (Cottenden AM, et al 2003).

As a procedure underpad is not a body worn product, it is not fully understood what the correlation of the Rothwell banding used for procedures in the variety of clinical uses is, as no known academic studies with an opinion on this have been identified. However, AM Cottenden et al (1998) undertook a study around predicting the clinical leakage properties using laboratory tests, which suggests an underpad as a secondary back-up product showed a fair correlation to the Rothwell banding when used in continence care. Although not looked at during this study this could have similarities when underpads are used as a secondary product during a procedure.

Rothwell banding has been carried out by the suppliers who provide procedure underpads via the national procurement provider, Figure 3, and it was felt, this showed relevant comparable product information for useful clinical comparison of products.

There are many technical tests that have been used throughout the years to test for absorbency, but trials comparing different disposable procedure underpads are few and it is not possible to draw firm conclusions from them on the effectiveness of different product designs features and materials (Abrams et al, 2017).

2.7. Clinical practice

In order to develop a shared vision of what a procedure underpad should offer several methods of engagement were used to develop and define the clinical criteria, Figure 6 (page 22), for procedure underpads.

2.7.1. Clinical impact

A definitive acknowledgment of almost 80% of clinical colleagues who engaged throughout the process stated **absorbency of the product as being very important** as illustrated in Figure 1.

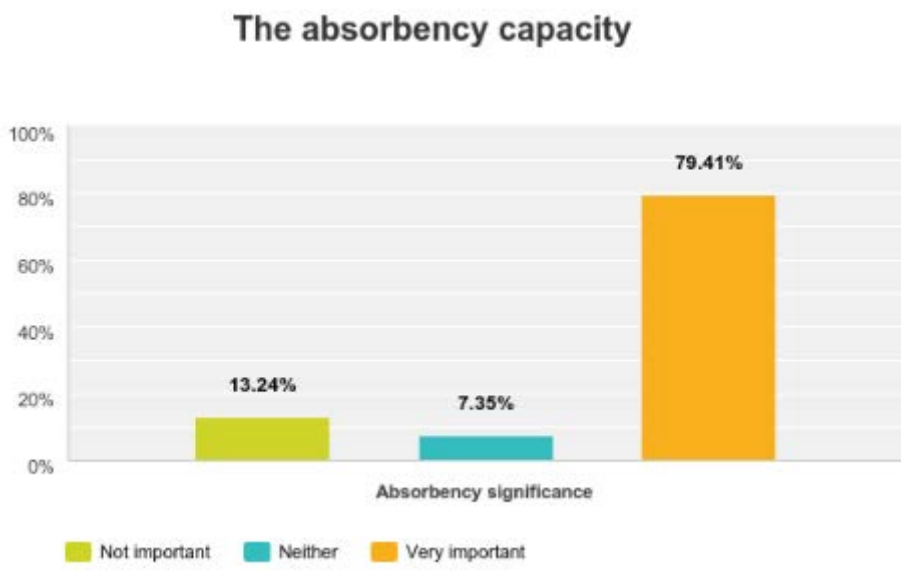


Figure 1: Clinical consultation showing procedure underpad absorbency importance

Absorbency indication marks were requested during clinical consultation to be simplified with a general acknowledgment on the difficulty of measuring absorption in exact amounts.

The CET review needed to provide a comparative view of absorbency capacity across all ranges of suppliers' procedure underpads and a simplified indication of absorbency.

This could only be done in a pragmatically sensible way as procedure underpads have a wide variety of uses in clinical practice. The procedure underpad absorbency capacity has been placed into a likely grouping in relation to their procedure and clinical setting, figure 2.

The Rothwell banding measurement figures were chosen to show absorbency capability (absorbency level measurements have been provided by the supplier) against clinical requirement of procedure underpads in three groups: light, moderate and high.

The graph, Figure 3 on page 13, shows the correlation between the Rothwell banding, absorbency measurement and different suppliers' products available from the national procurement provider at the time of this report, July 2017.

Although this graph in no way signifies definitive absorption capacity, due to the wide variety of clinical uses of procedure underpads, it does allow clinical comparison of brands and a graphical representation of relative positioning of suppliers products in relation to clinical need.

Clinical usages of procedures underpads shown in Figure 2 link to absorption capability which have been categorised to further enhance the clinical capability to choose the product for best patient fit, in relation to safety, quality and value.

The product assessment results matrix (section 4 of this report) shows all products and their scores in line with the same simplified categorisation, designed to aid clinicians in this selection.

It is not exhaustive, yet provides an indication of use with good clinical judgement and semblance to procedure underpad usage.

Absorbency		
Light	**Moderate**	**High**
Insertion/removal of lines. Skin preparation. Out Patient Department procedures. Examinations. Dressing & wound actions. Catheter procedures. Bowel procedures (non-theatre). Oral secretions / vomit. Rectal / genital / urology procedures. Patient use – Endoscopies Hygiene activities. Operating theatres limb wraps. Change or empty drain bottles. Intensive care - formed faecal incontinence.	Maternity postpartum - suturing, blood & lochia loss. Theatre blood loss. Oedematous patients / limbs. Wound wash-out.	Maternity intrapartum – rupture of membranes, collection of liquor. Theatre wash-out. Theatre trauma blood loss. Intensive Care - loose faecal incontinence. Loss of skin barrier e.g. Burns fluid seep.

Figure 2: List of clinical procedures with potential fluid management prediction

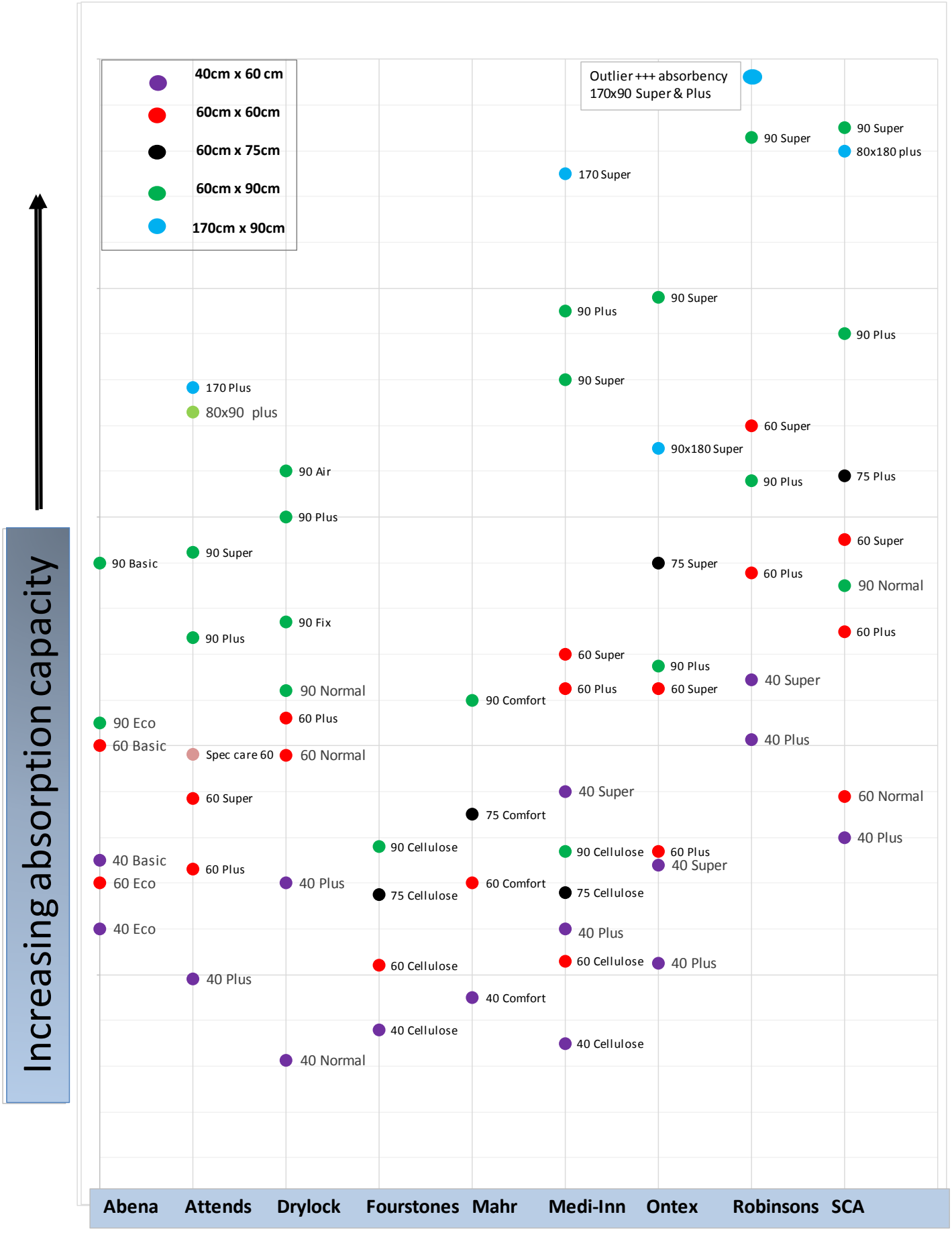


Figure 3: Procedure underpad absorbency capacity from Rothwell banding

In Figure 3, the graph, alongside the procedure underpad product assessment results matrix, is only a guide for the clinical staff using this review; absorption requirements are an estimate of need and should not be used as a rigid ranking. Small differences in absorbency capability that can be detected in standard tests may not be big enough to make a noticeable difference clinically, Cottenden et al (2003).

As noted from the graph in Figure 3, the industry provides ranges of varying absorbency and sizes. As part of the CET clinical conversations we aimed to gain an improved understanding of clinical practice related to the absorbency capacity required for varying procedures, see Figure 4.

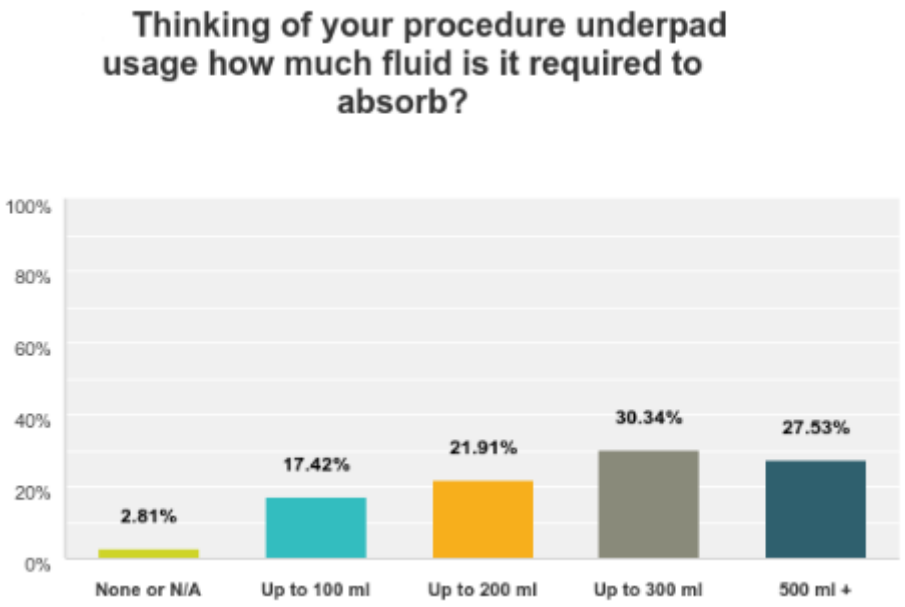


Figure 4: Clinical consultation showing the varying absorbency requirements of a procedure underpad

Clinical consultation showed that other factors, alongside absorbency, influenced product choice

- Speed of absorbency was highlighted with bursts of fluid absorption needed to prevent run off and contamination of laundry, furniture and/or equipment.
- Almost 70% of clinical colleagues suggested the procedure underpad needed to absorb within 1 minute.
- Colleagues draw attention to the need for a larger pad not related to absorbency, but to fluid bursts, length and velocity. As a result, this clinical requirement was taken in account with smaller size underpads categorised for light procedures only, independent of their absorption measurement, in the Product Assessment Result Matrix.
- Strength and robustness was deemed necessary – all pads maintained their tensile strength when wet and did not break down during evaluations.

2.8. Impact on patients

Other considerations in conjunction with absorbency capacity have shown to be important to clinical colleagues and patients alike:

- The texture and feel of the surface in a positive respect was important to just over 80% during clinical engagement. It is important to recognise, thinking of the high percentage usage in clinical settings where patients may be anaesthetised, sedated, under extreme duress and trauma, that the small difference in the feel of procedure underpads available via the national procurement provider may have less significance.
- Keeping the patient dry, as was highlighted by some clinicians, as a required need for the procedure underpad to remain dry to the touch, to help reduce skin exposure to moisture and moisture based irritants such as perspiration, liquid stool and exudate which could lead to increased skin inflammation, cracking of the skin and skin erosion. The product Assessment Results matrix clearly shows, under the section clinical use, 'Surface of the pad to remain dry when pad has been moistened', that no supplier's products met this clinical criteria. Fluid used was a small fraction of the maximum absorption capacity shown in Figure 3 and underpads were tested after 5 minutes allowing each underpad time to 'lock away the fluid' from the surface. Analysis of the clinical conversations recognises the wide variety of uses in clinical practice of a procedure underpad. Not meeting the clinical criteria for moisture against the skin highlights a need for education around when it is appropriate to use a procedure underpad and when a different product choice should be made. The Nursing and Midwifery Council (2015 p. 7) states to 'make sure that any information or advice given is evidence-based, including information relating to using any healthcare products'

2.9. Clinical impact of the report

The procedure underpad evaluations, the product assessment review document and section 2, clinical review in this report will allow clinical staff, who are using procedure underpads in a great variety of ways and who are faced with varying product choices, to gain a better understanding of the clinical impact, the impact on patients and the bearing on financial cost to the NHS that the use of procedure underpads have.

3. Pathway methods

Collated procedure underpad key information and supplier submitted evidence was used to help form initial ideas on product use, performance and requirements. This contributed to the development of the initial clinical criteria questions on procedure underpads, which were shared with frontline staff in national engagement events to gain clinical opinion and experience of the NHS to determine the clinical quality requirements of a procedure underpad.

3.1. Intelligence gathering

Information from a range of sources was gathered to provide a basis for clinical discussions about procedure underpads:

- published academic evidence
- guidelines and best practice documents
- MHRA alerts
- national procurement provider specification (regulatory and technical specification)
- international and other standards (e.g. ISO, EN and/or BSI)
- product information made available by the 9 suppliers

3.1.1. Literature search

The search terms used (see below) generated numerous returns mainly related to a variety of products for continence care and the excellent work that has been undertaken to improve patient outcome.

There is very little current research evidence about disposable procedure underpads which probably reflects the fact that they have become less popular for continence care in recent years and are now mainly used as procedure underpads strengthening the scope of this project.

Search criteria	Databases searched
Procedure underpad/s Underpads Procedure pads Bed sheets / pads Mattress sheets / pads Chair pads Incontinence pads Inco sheets	NICE website evidence search https://www.evidence.nhs.uk/ NICE website journals and databases https://www.nice.org.uk/about/what-we-do/evidence-services/journals-and-databases (using Healthcare databases advanced search tool – Ovid, Medline, CINAHL, databases searched) British Standards Institution https://www.bsigroup.com/en-GB/

3.1.2. National procurement provider specification

The current national procurement provider's (NHS Supply Chain) existing specification for the current framework combines disposable and washable continence care and associated products in to seven lots. Procedure underpads sit within Lot 6 - Disposable Underpads - Recycled Cellulose and Lot 7 - Disposable Underpads - Virgin Fluff. The majority of the procedure underpads purchased through the national procurement provider are on Lot 7.

The specification, as used by the NHS national procurement provider (NHS Supply Chain, July 2017), gives little clarity around the clinical criteria required of a procedure underpad. History does show previous good work during framework development in the subject of continence goes some way on attempting to categorise procedure underpads into light to medium and medium to heavy with absorption capacity related to the Rothwell banding.

3.1.3. National and international safety and quality standards

Account has also been taken of appropriate international and other standards as they pertain to the devices (e.g. ISO, EN and/or BSI).

The Medicines & Healthcare products Regulatory Agency (MHRA) website (https://www.gov.uk/drug-device-alerts) returned no product alerts relating to this product category against the search terms previously described.

This is not a requirement of the national procurement specification; however, this information may be necessary when completing local risk assessment for procedure underpads selection as specified by the Health and Safety Executive (2012).

3.1.4. Product suppliers and manufacturers

Requests for information were sent to all suppliers listed with the national procurement provider. All suppliers provided some level of information from product brochure through to technical datasheets and compliance with standards.

3.1.5. Quality of evidence

Hierarchy of evidence

References, page 24: Evidence based practice in nursing & healthcare: a guide to best practice" (B.M. Melnyk & E. Fineout-Overholt; 2005; p10)

Hierarchy ranking	Description
Level 1	A systematic review of all relevant randomised controlled trials (RCT) or evidence-based clinical practice guidelines based on systematic reviews of RCT evidence
Level 2	Evidence from at least one well designed RCT
Level 3	Evidence from well-designed controlled trials; non-randomised, quasi experimental
Level 4	Well-designed case control & cohort studies
Level 5	Systematic reviews of descriptive and qualitative studies
Level 6	Evidence from a single, descriptive or qualitative study
Level 7	Evidence from the opinion of authorities and/or reports of expert committees

Figure 5 – Hierarchy ranking

Case studies and isolated clinical reports were not considered due to lack of clear validity and reliability. It can be said that there is very limited clinical review material of procedure underpads in the literature within the confines of clinical indication for use.

The full review of evidence shows a real scarcity of high quality information specifically related to procedure underpads, not continence care. At best, evidence is seated primarily at Level 7 with some arguably at Level 6.

3.2. NHS clinical engagement

In order to develop a shared vision of what a procedure underpad should offer, numerous methods of engagement were used.

There are several stages to the clinical engagement process starting with a mapping exercise to determine who should be involved. For our purposes in this stage of the report we focused on clinical staff that are either:

a) Recognised as subject experts
b) Recognised as regular expert users of procedure underpads in their clinical practice

These are some of the approaches we have used:

- Regional and national face-to-face events with NHS clinical colleagues

- Focussed visits to NHS clinicians
- Website subscription
- Attendance at specialist network events
- Web-based surveys and e-engagement tools (e.g. email, WebEx, portal-based surveys)

To build a broad range of attendees at our events, letters were sent out inviting Trusts to nominate clinical colleagues to attend a series of regional group events. These were hosted by NHS organisations throughout England to enable the widest possible access for all invited. This ensured to set aside any pre-existing regional variance.

Details of the information gathered was recorded to inform a list of clinical criteria against which the product has been tested. Examples of the evidence gathering criteria questions posed are as below:

Procedure underpad questions
What do you currently use procedure underpads for in your practice?
If you could design your own product based on your clinical knowledge and experience, what would be the 'perfect' pad?
Ease of opening the container which stores the pads
The packaging is robust enough to store the pads safely until the last one is used
That the pads are easily dispensed
The absorbency capacity
The retention of the liquid within the pad
The texture and feel of the surface
The pad has sealed edges to prevent leakage
The liquid / discharge is dispersed within the pad quickly enough to prevent spillage
The colour of the pad, for the identification and assessment of the components of the liquid or discharge
There should be a range of sizes according to specific use
After use, that the pad can be folded or rolled for safe disposal without leakage

Figure 6: Clinical evidence gathering questions for a procedure underpad

3.3. Clinical criteria

The data received from all the NHS clinical engagement events, alongside the data collected from individual experts, was assimilated into a series of clinical criteria.

A clinical criterion is defined as a principle or standard by which products may be evaluated. It is an objective statement which describes to the clinician's requirement for the product.

The outcome was validated by clinical engagement workshop attendees and all other clinical experts engaged with. In addition, other clinical experts who are likely to add further useful insight were also included.

CLINICAL CRITERIA
Packaging
The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find.
The packaging can be easily opened.
Opening
The pads are easily dispensed individually.
The packaging remains robust to support the products in a useable condition until empty.
Clinical Use
The pad in its dry state is comfortable for a procedure.
The colour of the absorbent surface does not impede clinical decision making.
Patient comfort with pad use.
Fluid management - light absorbency / moderate absorbency / high absorbency.
Surface of the pad to remain dry when pad has been moistened.
Patient comfort with pad use after liquid applied.
The pad to remain waterproof to protect the surface underneath it.
Retention of liquid within the pad.
Disposal
Pad can be disposed safely.

Figure 7: Clinical criteria developed for a procedure underpad

Clinical criteria are published online at www.nhsbsa.nhs.uk/CET .

3.4. Product evaluation

Evaluation methodologies are defined for each and every clinical criterion. They reflect a simulated clinical environment.

Wherever possible, products were supplied in a ‘ward-ready’ unit of issue as would be found by clinical staff on accessing a store area in their clinical environment. Where this has not been possible it was acknowledged as part of the product assessment results matrix.

The tests were formulated to move through the key aspects of product use using the NHS Clinical Evaluation Team product cycle:

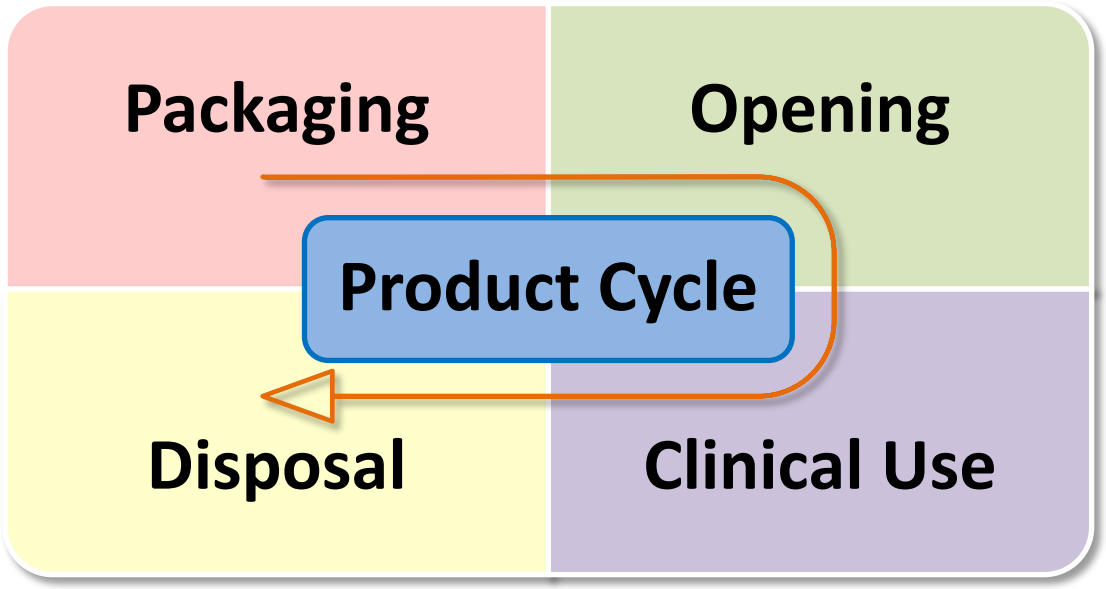


Figure 8 – NHS Clinical Evaluation Team Product Cycle

The evaluation product was, where possible, ordered and picked from NHS distribution centres. Thus we were reviewing lot numbers used across the NHS. Products evaluated have been stored post evaluation for a period of three months after publication of this review.

Practicing NHS clinical staff were invited to review NHS Supply Chain products in accordance with the developed criteria. It was not possible to ‘blind’ the evaluations, however, the product to be evaluated was independently picked and prepared for evaluation by colleagues who were not otherwise involved in the process.

Clinical evaluators entered test data independently (without inter-rater agreement) to individual spreadsheets. These were then collated, reviewed and summarised by the clinical specialist lead for the project.

The defined criteria either prompted a ‘yes/no’ answer, or a subjective score was given from 0-3 as follows.

As part of the evaluation preparation, each evaluator was given a more detailed and product specific definition for each of the scores.

Score	Meaning
0	This does not meet the criteria
1	This partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

Figure 9 – NHS Clinical Evaluation Team scoring methods

These numerical scores across all evaluators were totalled and a mean value determined. This mean value has then been converted into a star rating (see Product Assessment Results matrix).

The mean values convert to a star rating in accordance with the following table:

Point scored			Star value	
0	to	0.99	0	stars
1	to	1.24	1	star
1.25	to	1.74	1.5	stars
1.75	to	2.24	2	stars
2.25	to	2.74	2.5	stars
2.75	to	3	3	stars

Figure 10 – conversion of mean scores to star rating

Maximum number of stars for specific clinical criterion may be two, due to clinical requirement of product which cannot exceed meeting the criteria, this is depicted as a score out of 2 stars.

Some of the criteria generated a defined answer, i.e. Yes/No, and this has been represented with a √ / X.

The results obtained have been validated by the NHS Clinical Evaluation Team moderation committee for consistency of scoring and interpretation.

4. Product assessment results

The product assessment results are summarised in the attached Product Assessment Report matrix. The tested clinical criteria are listed horizontally down the left-hand side of the page with the tested device found vertically at the top of the matrix. The photographic images show products used in the evaluation process.

The products represented are the range of suppliers and brands available through the NHS national procurement provider's framework as of July 2017.

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria														
Supplier		**Abena UK Ltd**			**Abena UK Ltd**			**Attends Ltd**					**Attends Ltd**		
															
Brand		**Abri Soft Eco**			**Abri Soft Basic**			**Attends Cover Dri - Plus**					**Attends Cover Dri - Super**		
MPC		**254116**	**254117**	**254118**	**4116**	**4117**	**4118**	**203910**	**203934**	**203972**	**204016**	**204030**	**203958**	**203996**	
NPC								**VMU331**	**VMU022**	**VMU026**		**VMU031**	**VMU032**	**VMU033**	
	Description	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm & 60x90cm**			**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm & 60x90cm**			**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x90cm, 80x90cm & 170x90cm**					**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60X60 & 60x90cm**		
	Unit of Issue	**240**	**240**	**120**	**240**	**240**	**120**	**50**	**50**	**50**	**30**	**50**	**50**	**50**	
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	★★★ (2.80)			★★★ (2.80)			★★½☆ (1.60)					★★½☆ (1.60)	
	The packaging can be easily opened.	Scores	★★½ (2.60)			★½☆☆ (1.60)			★★★ (2.80)					★★½ (2.40)	
Opening and Preparation	The pads are dispensed individually	Scores	★★★ (3.00)			★★½ (2.60)			★★★ (2.80)					★★★ (2.80)	
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★½ (2.60)			★★☆ (2.20)			★★★ (3.00)					★★★ (3.00)	
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★½ (2.60)			★★½ (2.40)			★★½ (2.60)					★★½ (2.60)	
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★★ (2.80)			★★★ (2.80)			★★★ (2.80)					★★★ (2.80)	
Light absorption required		Sizes	60x40cm	60x60cm	60x90cm	60x40cm	60x60cm	60x90cm	60x40 cm	60x60 cm	60x90 cm	80x90 cm	170x90 cm	60x60cm	60x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✓	✓	✗	✓	✓	✗	✓	✓	✓	✓	✓	✓
	Fluid management - high absorbency	Scores	✗	✗	✗	✗	✗	✓	✗	✗	✗	✓	✓	✗	✓
Moderate absorption required **Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs**	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00)**			☆☆ (0.00) **			☆☆ (0.00) **					☆☆ (0.20) **	
	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **			★★ (2.00) **			★★ (2.00) **					★★ (2.00) **	
High absorption required **Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep**	Retention of liquid within the pad	Scores	★☆☆ (1.20)			★★☆ (2.00)			★★☆ (2.00)					★★☆ (2.00)	
Disposal	Pad can be disposed safely	Scores	★½ (1.40) **			★★ (2.00) **			★★ (2.00) **					★★ (2.00) **	

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria									
Supplier		**Drylock Technologies**	**Drylock Technologies**			**Drylock Technologies**	**Drylock Technologies**		
									
Brand		**Dailee combed premium fix**	**Dailee combed Normal**			**Dailee combed premium air**	**Dailee combed Plus**		
MPC		**626205**	**622202**	**624204**	**626204**	**626402**	**622301**	**624302**	**626303**
NPC		**VMU403**	**VMU397**	**VMU399**	**VMU401**	**VMU404**	**VMU398**	**VMU400**	**VMU402**
Description		**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Size 60x90cm**	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x90cm**			**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Size 60x90cm**	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Size 60x40cm, 60x60cm & 60x90cm**		
Unit of Issue		**25**	**25**	**25**	**25**	**30**	**25**	**25**	**25**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	Pre-production sample only available at time of evaluation			Pre-production sample only available at time of evaluation	Pre-production sample only available at time of evaluation		
	The packaging can be easily opened.	Scores	★★½☆ (1.40)			★★½☆ (1.40)	★★½☆ (1.40)		
Opening and Preparation	The pads are dispensed individually	Scores	★★½☆ (1.60)			★★★☆ (1.80)	★★★☆ (1.80)		★★½☆ (1.60)
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★½☆ (1.40)			★★½☆ (1.60)	★★½☆ (1.60)		★★½☆ (1.40)
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★★ (3.00)			★★★ (3.00)	★★★ (2.80)		★★★ (3.00)
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★★ (3.00)			★★★ (2.80)	★★★ (2.80)		★★★ (3.00)
		Sizes	60x90cm	60x40cm	60x60cm	60x90cm	60x90cm	60x40cm	60x60cm	60x90cm
Light absorption required										
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✓	✗	✓	✓	✓	✗	✓	✓
	Fluid management - high absorbency	Scores	✗	✗	✗	✗	✓	✗	✗	✓
Moderate absorption required										
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **			☆☆ (0.20) **	☆☆ (0.00) **			☆☆ (0.40) **
	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **			★★ (2.00) **	★★ (2.00) **			★★ (2.00) **
High absorption required										
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	★★☆ (2.00)			★★☆ (2.00)	★★☆ (1.80)			★★☆ (2.00)
Disposal	Pad can be disposed safely	Scores	★★ (1.80) **			★★ (2.00) **	★★ (1.80) **			★★ (2.00) **

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria					
		Supplier	**Fourstones Paper Mill Co Ltd**			
						
		Brand	**Warden BFM**			
		MPC	**6415DB**	**6479DB**	**VMU096**	**6090DB**
		NPC	**VMU260**	**VMU261**	**VMU096**	**VMU262**
		Description	**Disposable procedure underpad with Cellulose wadding Recycled Pulp 4 way sealed & waterproof backing. Size 40x60cm, 60x55cm, 60x75cm & 60x90cm**			
		Unit of Issue	**100**	**100**	**100**	**100**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	★☆☆ (1.20)			
	The packaging can be easily opened.	Scores	★★☆ (1.80)			
Opening and Preparation	The pads are dispensed individually	Scores	★★☆ (2.20)			
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★½ (2.40)			
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★½☆ (1.40)			
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	☆☆☆ (0.20)			
Light absorption required		Sizes	60x40cm	60x60cm	60x75cm	60x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✗	✓	✓
Moderate absorption required	Fluid management - high absorbency	Scores	✗	✗	✗	✗
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **			
High absorption required	The pad to remain waterproof to protect the surface underneath it	Scores	★½ (1.60) **			
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	☆☆☆ (0.60)			
Disposal	Pad can be disposed safely	Scores	☆☆ (0.80) **			

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria					
Supplier			**Mahr Impex UK Ltd**			
						
Brand			**ADA COMFORT**			
MPC			**79000150604090**	**79000150606090**	**79000200000000**	**79000150607590**
NPC			**VMU423**	**VMU424**		**VMU425**
		Description	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x90cm & 170x90cm**			
		Unit of Issue	**240**	**150**	**150**	**150**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	★½☆ (1.60)			
	The packaging can be easily opened.	Scores	★★☆ (1.80)			
Opening and Preparation	The pads are dispensed individually	Scores	★★☆ (2.20)			
	The packaging remains robust to support the products in a useable condition until empty	Scores	★½☆ (1.60)			
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★☆ (1.80)			
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★★ (2.80)			
Light absorption required		Sizes	60x40cm	60x60cm	60x75cm	60x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✓	✓	✓
Moderate absorption required	Fluid management - high absorbency	Scores	✗	✗	✗	✗
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **			
High absorption required	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **			
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	★★☆ (1.80)			
Disposal	Pad can be disposed safely	Scores	★★ (1.80) **			

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria												
		Supplier	**Medi-Inn Ltd**			**Medi-Inn Ltd**				**Medi-Inn Ltd**			
													
		Brand	**Medi-Inn Plus**			**Medi-Inn Super**				**Medi-Inn Cellulose**			
		MPC	**N12500**	**N12600**	**N12700**	**N11069**	**N11071**	**N11703**	**N11000**	**N12000**	**N12001**	**N12002**	**N12003**
		NPC	**VMU416**	**VMU418**	**VMU420**	**VMU417**	**VMU419**	**VMU421**	**VMU422**	**VMU412**	**VMU413**	**VMU414**	**VMU415**
		Description	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm & 60x90cm**			**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x90cm & 170x90cm**				**Disposable procedure underpad with Cellulose wadding Recycled Pulp 4 way sealed & waterproof backing. Size 40x60cm, 60x60cm, 60x75cm & 60x90cm**			
		Unit of Issue	**300**	**150**	**150**	**300**	**150**	**150**	**100**	**200**	**150**	**150**	**100**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	Pre-production sample only available at time of evaluation			Pre-production sample only available at time of evaluation				Pre-production sample only available at time of evaluation			
	The packaging can be easily opened.	Scores	★★☆ (1.80)			★★☆ (2.20)				★★☆ (1.80)			
Opening and Preparation	The pads are dispensed individually	Scores	★★★ (2.80)			★★☆ (2.20)				★★½ (2.60)			
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★½ (2.40)			★★☆ (2.00)				★★½ (2.40)			
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★☆ (1.80)			★★☆ (1.80)				★★☆ (1.80)			
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★☆ (2.20)			★★★ (3.00)				★★½ (2.40)			
Light absorption required		Sizes	60x40cm	60x60cm	60x90cm	60x40cm	60x60cm	60x90cm	170x90cm	60x40cm	60x60cm	60x75cm	60x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✓	✓	✗	✓	✓	✓	✗	✗	✓	✓
	Fluid management - high absorbency	Scores	✗	✗	✓	✗	✗	✓	✓	✗	✗	✗	✗
Moderate absorption required													
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **			☆☆ (0.40) **				☆☆ (0.00) **			
	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **			★★ (2.00) **				★★ (2.00) **			
High absorption required													
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	★★☆ (2.00)			★★☆ (2.00)				★½☆ (1.60)			
Disposal	Pad can be disposed safely	Scores	★★ (1.80) **			★★ (2.00) **				★½ (1.40) **			

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

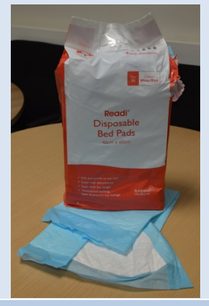
NHS CET Product Assessment Cycle	Assessment Criteria									
		Supplier	**Ontex Healthcare UK Ltd**			**Ontex Healthcare UK Ltd**				
										
		Brand	**ID Protect Expert Plus**			**ID protect expert Super**				
		MPC	**5800460300**	**5800660300**	**5800960300**	**5800475300**	**5800675300**	**5800775300**	**5800975300**	**5800075200**
		NPC	**VMU366**	**CFP1741**	**VMU363**	**VMU388**	**VMU365**	**VMU364**	**VMU361**	**CFP1734**
		Description	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm & 60x90cm**			**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x75cm, 60x90cm, 90x180cm**				
		Unit of Issue	**30**	**30**	**30**	**270**	**30**	**30**	**30**	**20**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	★★½ (2.60)			★★½ (2.60)				
	The packaging can be easily opened.	Scores	★★½ (2.40)			★★½ (2.60)				
Opening and Preparation	The pads are dispensed individually	Scores	★★☆ (2.00)			★★☆ (2.20)				
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★☆ (2.20)			★★☆ (2.20)				
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★½ (2.60)			★★½ (2.40)				
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★★ (2.80)			★★★ (2.80)				
		Sizes	60x40cm	60x60cm	60x90cm	60x40cm	60x60cm	60X75cm	60x90cm	90x180cm
Light absorption required										
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✓	✓	✗	✓	✓	✓	✓
	Fluid management - high absorbency	Scores	✗	✗	✗	✗	✗	✗	✓	✓
Moderate absorption required										
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **			☆☆ (0.00) **				
	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **			★★ (2.00) **				
High absorption required										
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	★½☆ (1.60)			★★☆ (2.00)				
Disposal	Pad can be disposed safely	Scores	★½ (1.60) **			★★ (2.00) **				

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria		Supplier	Robinson Healthcare Limited				Robinson Healthcare Limited			
											
			Brand	Readi				Readi			
			MPC	5515	5516	5508	5425	5503	5504	5509	5426
			NPC	VMU389	VMU391	VMU393	VMU395	VMU390	VMU392	VMU394	VMU396
			Description	Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm 60x90cm & 170x90cm				Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm 60x90cm & 170x90cm			
			Unit of Issue	100	100	100	100	100	100	100	100
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find		Scores	★★☆ (2.20)				★★☆ (2.20)			
	The packaging can be easily opened.		Scores	★★½ (1.40)				★★½ (1.40)			
Opening and Preparation	The pads are dispensed individually		Scores	★☆☆ (1.20)				★☆☆ (1.20)			
	The packaging remains robust to support the products in a useable condition until empty		Scores	★★½ (1.60)				★★½ (1.60)			
Clinical Use	The pad in its dry state is comfortable for a procedure		Scores	★★½ (1.40)				★★½ (1.40)			
Examples	The colour of the absorbent surface does not impede clinical decision making		Scores	★★½ (2.40)				★★½ (2.60)			
Light absorption required			Sizes	60x40cm	60x60cm	60x90cm	170x90cm	60x40cm	60x60cm	60x90cm	170x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency		Scores	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency		Scores	✗	✓	✓	✓	✗	✓	✓	✓
Moderate absorption required	Fluid management - high absorbency		Scores	✗	✗	✓	✓	✗	✗	✓	✓
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened		Scores	☆☆ (0.00) **				☆☆ (0.20) **			
High absorption required	The pad to remain waterproof to protect the surface underneath it		Scores	★★ (1.80) **				★★ (2.00) **			
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad		Scores	★★☆ (1.80)				★★☆ (2.00)			
Disposal	Pad can be disposed safely		Scores	★★☆ (1.60) **				★★ (2.00) **			

**Maximum number of stars attainable 2

PROCEDURE UNDERPADS

Score	Meaning
0	This does not meet the criteria
1	The partially meets the criteria
2	This meets the criteria
3	This exceeds the criteria

NHS CET Scoring Matrix

NHS CET Product Assessment Cycle	Assessment Criteria										
Supplier			**SCA UK Ltd**		**SCA UK Ltd**					**SCA UK Ltd**	
											
Brand			**TENA Bed Normal**		**TENA Bed Plus**					**TENA Bed Super**	
MPC			**770045**	**770047**	**770113**	**770100**	**770115**	**770104**	**771103**	**770202**	**770200**
NPC			**VMU375**	**VMU376**	**VMU349**	**VMU309**	**VMU313**	**VMU310**	**VMU316**	**VMU315**	**VMU314**
		Description	**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x60cm & 60x90cm**		**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x40cm, 60x60cm, 60x75cm, 60x90cm & 80x180cm**					**Disposable procedure underpad with virgin fluff and super absorbent polymers, 4 way sealed & waterproof backing. Sizes 60x60cm and 60x90cm**	
		Unit of Issue	**40**	**35**	**30**	**30**	**30**	**30**	**30**	**30**	**30**
Packaging	The packaging has an easily identified description of correct use and size. All necessary detail such as Lot Number and Manufacturer are easy to find	Scores	★★☆ (2.00)		★★☆ (2.00)					★★☆ (2.00)	
	The packaging can be easily opened.	Scores	★★★ (3.00)		★★★ (2.80)					★★★ (2.80)	
Opening and Preparation	The pads are dispensed individually	Scores	★★½ (2.40)		★★★ (2.80)					★★½ (2.40)	
	The packaging remains robust to support the products in a useable condition until empty	Scores	★★★ (2.80)		★★★ (2.80)					★★★ (2.80)	
Clinical Use	The pad in its dry state is comfortable for a procedure	Scores	★★½ (2.40)		★★☆ (2.00)					★★½ (2.40)	
Examples	The colour of the absorbent surface does not impede clinical decision making	Scores	★★½ (2.60)		★★★ (2.80)					★★★ (2.80)	
Light absorption required		Sizes	60x60cm	60x90cm	60x40cm	60x60 cm	60x75 cm	60x90 cm	80x180 cm	60x60cm	60x90cm
Examinations, insertion of lines, skin prep, dressing & wound procedures, catheter procedures, oral secretions, bottom end procedures, hygiene needs, formed faecal incontinence and endoscopy	Fluid management - light absorbency	Scores	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Fluid management - moderate absorbency	Scores	✗	✓	✗	✓	✓	✓	✓	✓	✓
Moderate absorption required	Fluid management - high absorbency	Scores	✗	✓	✗	✗	✗	✓	✓	✗	✓
Maternity-postpartum, theatre blood loss, wound wash out and oedematous patients / limbs	Surface of the pad to remain dry when pad has been moistened	Scores	☆☆ (0.00) **		☆☆ (0.00) **					☆☆ (0.00) **	
High absorption required	The pad to remain waterproof to protect the surface underneath it	Scores	★★ (2.00) **		★★ (2.00) **					★★ (1.80) **	
Loose faecal incontinence, Maternity-intrapartum, theatre wash-out, theatre trauma blood loss and loss of skin barrier e.g. burns fluid seep	Retention of liquid within the pad	Scores	★½☆ (1.40)		★½☆ (1.60)					★★☆ (1.80)	
Disposal	Pad can be disposed safely	Scores	★★½ (1.40) **		★★ (1.80) **					★★ (1.80) **	

**Maximum number of stars attainable 2

5. Further considerations and recommendations

There is a range of procedure underpads available via the national contacted provider. This report recognises that no one product will be appropriate for all individuals, clinical applications or requirements. Whilst it is not reasonable or sensible to provide an extensive range of procedure underpads within any trust, consideration should be given to the absorbency requirement of these products in differing clinical settings to prevent over specification when only light absorbency requirement is necessary. This corresponds to Lord Carter's statement that 'high quality patient care and sound financial management go hand in hand' (February 2016).

Our expectation is that as the procedure underpad report is used and products are reviewed with their grouping, improvements will be made within product categorisation.

Clinicians nationally commented on the following themes:

- Clear simple identification of product absorbency across the NHS specification such that clinicians and suppliers know what is required. This should be aligned to light; moderate and high absorbency rate possibly with the usage categorisation, for example: examinations, line insertion, dressing changes etc.
- Procedure underpad packaging is clearly labelled for temporary protection of furniture, laundry and equipment.
- A general consensus should be agreed on where procedure underpads are categorised in the NHS catalogue related to clinical use (should they also remain in the continence care section for optimum synergy of suppliers?).
- All procedure underpads should sit with the same NHS procurement service provider and be categorised into 1) Procedure underpads made from Recycled Cellulose and 2) Procedure underpads made from Virgin Fluff containing SAP which may include products with or without breathable backing. All products should have the appropriate size ranges with clear and simple identification of product absorbency, such that clinicians and suppliers know what is required. This should be aligned to light, moderate and high absorbency rates, possibly with the usage categorisation, for example: examinations, line insertion, dressing changes, intensive care loose faecal incontinence etc. This will assist in clinical choice and product selection, specifically around managing moisture and helping to maintain skin integrity.
- All manufacturers' packaging has their manufacturing product code printed on for ease of re-ordering.

6. References

Abrams, P., Cardozo, L., Khoury, S., A. Wagg and Wein, A. (2017) International Consultation on Incontinence, 6th edition

Brown, DS., (1994) 'Diapers and underpads, Part 1: Skin integrity outcomes.' Ostomy Wound Manage, vol 40, no. 9 pp.20-28

Brown, DS., (1994) 'Diapers and underpads, Part 2: Cost outcomes', Ostomy Wound Manage, vol 40, no. 9 pp.20-28

Cottenden, AM., Fader, M., Patterson, L. and Brooks, R. (2003) 'how useful is laboratory test iso 11948-1 (The Rothwell method) for predicting the leakage performance of incontinence pads in real use?' (Online). Available at https://www.ics.org/Abstracts/Publish/41/000170.pdf

Cottenden, AM., Fader, M., Petterson. L. and Brooks, R (2003) 'How well does ISO 11948-1 (the Rothwell method) for measuring the absorption capacity of incontinence pads in the laboratory correlate with clinical pad performance.' Medical Engineering and Physics, vol 25, pp.603-613

Cottenden, AM., Dean, GE., Brooks, RJ.. Haines-Nutt, RF., Rothwell, JG. And Penfold PH., (1998) 'Disposable bed pads for incontinence: predicting their clinical leakage properties using laboratory tests', Jul, vol 20, no. 5 pp. 347-59

Lord Carter of Coles, (2016) Operational productivity and performance in English NHS acute hospitals: Unwarranted variations, Department of Health

Meshino, S., Trefz, B. (2013) The Effect of Breathable Under Pads to Decrease Hospital Acquired pressure Ulcers: A Nurse resident Project. Department of Nursing, Thomas Jefferson University Hospitals, Philadelphia, PA.

RCN (2012) Essential practice for infection prevention and control (Online), Available:https://www.rcn.org.uk/professional-development/publications/pub-004166

NURSING AND MIDWIFERY COUNCIL (NMC), 2015. The code: professional standards of practice and behaviour for nurses and midwives. London: NMC.

Preventing slips and trips at work 'A brief guide' (Online). Available at www.hse.gov.uk/pubns/indg225.htm

7. GS1 compliant barcodes

The CET is aware of the Scan4Safety project and is aligned with the ambitions of the programme, which will deliver significant benefits in terms of patient safety and efficiency, to the NHS. The adoption of standards, driven by Scan4Safety, enables patient, product and location identification and traceability from the supply chain to the patient.

Adoption of these standards has also been shown to improve the quality of care by minimising the risk of human error. The CET encourages suppliers to add GS1 compliant barcodes to their products before the published deadlines.

The CET will be considering the inclusion of an evaluation criteria relating to the presence of GS1 compliant barcodes in future reports, as following our clinical conversations we have seen clinical staff asking for it to be included.

8. Disclaimer

Reports published by the NHS Clinical Evaluation Team represent general guidance and the team's opinions on products are based on the clinical evaluations undertaken, using the information and clinical criteria generated from extensive stakeholder engagement in line with the team's requirement and evaluation pathway. Reports will be reviewed and updated at the team's discretion as deemed appropriate to reflect any changes.

You should make your own assessment and not take or rely on the opinions expressed by the NHS Clinical Evaluation Team, as contained in the reports, as recommendations or advice to buy or not buy (as the case may be) particular products.

The NHS Clinical Evaluation Team is not responsible for any errors or omissions, or for the results obtained from the use of the information contained in the reports. The reports are provided 'as is', with no guarantee of completeness, accuracy or timeliness and without representation, warranty, assurance or undertaking of any kind, express or implied, including, but not limited to fitness for a particular purpose.

The NHS Clinical Evaluation Team shall not be liable to you or anyone else for any decision made or action taken in reliance on the information contained in the reports or for any consequential, special, indirect loss.

9. Acknowledgements

On behalf of the Clinical Reference Board and the NHS Clinical Evaluation Team, we would like to acknowledge the support, help and advice given by our colleagues across a range of organisations. We would particularly like to thank the Department of Health, NHS Business Services Authority and their Communications team and, most importantly, our NHS colleagues who have supported our work.

The team would also like to acknowledge the inspiration of Mandie Sunderland who saw this opportunity and who, through her personal drive and enthusiasm, has ensured that the clinical voice and the need for quality, safety and value throughout the NHS has been heard.

10. Authors and NHS Clinical Evaluation Team information

NHS Clinical Specialist Lead author:

Karen Hudson, Clinical Specialist Lead, Department of Health

NHS Clinical Specialist joint project lead:

Jillian Best, RN, Queens Nurse, Clinical Specialist Lead, Department of Health

With support from NHS Clinical Evaluation Team colleagues:

- Dr Naomi Chapman, RN, Clinical Programme Lead/Deputy Chief Nurse
- David Newton, RN, Clinical Specialist Lead, Department of Health
- Marc Naughton, Senior Paramedic, Clinical Specialist Lead, Department of Health
- Roger Kirkham, RN, Clinical Specialist Lead, Department of Health
- Simon Hall, RN, Clinical Specialist Lead, Department of Health
- Sian Fumarola, RN, Clinical Specialist Lead, Department of Health
- Stephanie McCarthy, RN, Clinical Specialist Lead, Department of Health

You can find team member full biographies at: www.nhsbsa.nhs.uk/CET

Subscribe to the NHS Clinical Evaluation Team mailing list:

Email: clinical.evaluationteam@nhs.net

NHS Clinical Evaluation Team
by the NHS, for the NHS

'Quality, safety and value are at the heart of our work and it's important that we use our clinical experience to deliver high standards of care while reducing cost and waste in the NHS.'

Mandie Sunderland
Chair, Clinical Reference Board
(Governing body of the NHS Clinical Evaluation Team)